

# Health Consultation

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A. P. GREEN REFRACTORIES MORRIS PLANT

MORRIS, GRUNDY COUNTY, ILLINOIS

CERCLIS NO. ILD049136658

DECEMBER 5, 1997

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Agency for Toxic Substances and Disease Registry

Division of Health Assessment and Consultation

Atlanta, Georgia

EPA Region 5 Records Ctr.



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## **Health Consultation: A Note of Explanation**

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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## HEALTH CONSULTATION

A. P. GREEN REFRACTORIES MORRIS PLANT

MORRIS, GRUNDY COUNTY, ILLINOIS

CERCLIS NO. ILD049136658

Prepared by:

Illinois Department of Public Health  
Under Cooperative Agreement with the  
Agency for Toxic Substances and Disease Registry

## BACKGROUND AND STATEMENT OF ISSUES

The Illinois Environmental Protection Agency (IEPA) requested that the Illinois Department of Public Health (IDPH) determine if conditions at the A.P. Green Refractories site pose a public health threat. The A.P. Green site is approximately 7 miles east of Morris, in Grundy County, Illinois (Figure 1). IDPH has reviewed the historical and environmental data available to determine if a public health threat exists at the site. Concentrations of hazardous compounds have been identified in on-site and off-site sediment. The site was placed on the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) list in August 1980.

The site is on approximately 600 acres in a rural area surrounded by wetlands and recreational areas. It is bordered by scattered wetland areas and a General Electric nuclear waste storage facility on the northeast, Goose Lake Prairie State Park, Heidecke Lake and the Illinois River to the northwest and west, and a cooling lake for the Dredsen Power Station and the Kankakee River on the east (Figure 2). Scattered single family residences, residential developments, and previously strip-mined areas are south of the site. No municipal water systems are within 3 miles of the site. The private wells around the site are believed to be approximately 100 feet or greater in depth and have a sulfur odor associated with them (1).

A.P. Green began operations in 1963 on the site that consisted of mining clay from old strip mines. This clay was mined 3 to 25 feet below the ground surface and was used to manufacture refractory bricks. After the mining operations ceased, A.P. Green manufactured alumina-chromic oxide plastics for use in high temperature environments. By-products generated from these operations were allegedly recycled and used as product. This facility operated until 1986 when operations were moved to other A.P. Green plants. The production building remains, and according to A.P. Green, it is empty. An office next to the production building appeared to be occupied when IDPH personnel visited the site on March 20, 1997.

In 1977 and 1978, A.P. Green accepted sludge from the Metropolitan Sanitary District of Greater Chicago (MSDGC). Allegedly, this sludge was used as a nutrient for depleted soils and to neutralize the acid water in the "clay pits." Analysis of the sludge revealed the presence of heavy metals.

In 1984, IEPA conducted a CERCLA preliminary assessment at the site. Later in 1984, IEPA again inspected the site in response to a complaint alleging that A.P. Green had improperly disposed of 6 transformers at the site. Six A.P. Green representatives denied any such activities, and IEPA personnel did not find evidence of transformer disposal. The U.S. Environmental Protection Agency (USEPA) and Ecology and Environment inspected the facility in 1986 and identified sludge, acids, and bases as concerns. A 1993 Site Inspection Prioritization (SIP) Report conducted by B&V Waste Science and Technology Corporation also identified heavy metals from the sludge as contaminants of concern (1).

Regulatory involvement at the site has been limited to the aforementioned IEPA and USEPA CERCLA inspections. The facility was never regulated under the Resource Conservation Recovery Act (RCRA) and was not part of any regular IEPA or USEPA inspection program.

In August 1995, the IEPA CERCLA Site Team Evaluation Prioritization (STEP) field sampling activities were conducted. Eight on-site and 3 off-site sediment samples, 1 on-site well, and 2 off-site residential water samples were collected during the inspection. The sediment samples were taken to determine if contaminants were present on the site and if contaminants had migrated off the site. The water samples were collected to assess whether plant site activities had adversely affected the underlying groundwater. Future plans for the property include a residential development around and recreational use of the main body of water. Plans are to provide the new subdivision with water from a public water supply (2).

IDPH regional staff visited the site on March 20, 1997. Site access was not restricted. A gate at the intersection of the plant road and Dresden Road was open. Trash cans were set on the side of the road for garbage pick-up. Although no one was home, an on-site house appeared to be occupied. IDPH staff saw a picnic table and tire tree swing in the front yard. Likewise, an office-type building west of the former production facility was occupied. A Chevrolet utility vehicle was parked next to the office. IDPH staff saw a water cooler, a bicycle, and a gasoline can near the office. A backhoe and grader were sitting in the parking lot. Two mobile homes (construction trailers) were parked immediately east of the production facility. IDPH staff did not see anyone in the office at the time of the site visit.

The clay pits contained water at levels 1 to 2 feet below the ground surface. The largest pit was directly south of the former production facility. That pit is believed to be about 40 feet deep. Geese were seen swimming in the water. Water flow from these areas is believed to be channeled to the eastern end of the site through a series of ditches and small ponds. Near the entrance to the site, this water is directed into one large culvert and flows under Dresden Road.

To date, IEPA has not been able to identify the location of the sludge applications. No visible signs of stained soils, stressed vegetation or waste piles have been identified. IEPA found some abandoned heavy equipment behind the house (west). Also, IEPA found seven 55-gallon drums that appeared to have "Crusher" oil oozing from them onto the ground. Next to the drums was a larger container with a garden hose attached. IEPA found old railroad ties and a refrigerator between the drums and the gravel road.

Grundy County Health Department personnel were familiar with this site, but no one had reported any health concerns about the site to them (3).

## **DISCUSSION**

In August 1995, IEPA collected eleven sediment samples and three residential well water samples. Analytical sediment samples contained levels of volatile and semivolatile organic

compounds, pesticides, and inorganic compounds. Sample results from the private wells did not indicate the presence of semivolatile or inorganic compounds. Figure 2 depicts the areas where samples were collected. Sediment sample analysis results are summarized in Table 1.

The maximum concentration of each contaminant was compared with appropriate screening comparison values, when available, to select contaminants for further evaluation for both carcinogenic and non-carcinogenic health endpoints. A detailed discussion of each comparison value used is found in Attachment 1. Chemicals that exceeded comparison values were selected for further evaluation.

Residential well water did not contain contaminants at levels above comparison values. The results of sediment analysis indicated that benzo(a)pyrene (Table 2) may have exceeded soil comparison values. The result was an estimated value because either the sample as collected or the equipment used to analyze the sample prevented an exact measurement of the quantity of benzo(a)pyrene present in the sediment. Because of the low concentrations detected and the low activity on the site, none of the PAHs detected in the on-site sediments would be expected to pose any adverse health effects to individuals directly exposed to the contaminant through ingestion, inhalation, or dermal contact. Additionally, there is no apparent increased cancer risk to anyone who might be exposed to the PAHs at the site. Residents of the home on the site are not expected to be exposed to contaminants at levels of health concern.

## CONCLUSIONS

After review of the available data, IDPH concludes the site, in its present condition, presents no apparent public health hazard. Residential wells did not contain contamination at levels above comparison values. Levels of PAHs in the sediments at the site as it is currently used would not pose a health risk. No conclusion can be drawn as to whether plans for future development at the site could influence a change in contaminant levels.

## RECOMMENDATIONS

Further sampling may be necessary if site conditions change or if the site is developed for commercial or additional residential use.

## PREPARER OF REPORT

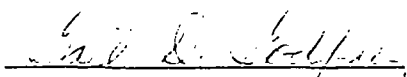
Cary Ware  
Environmental Toxicologist  
Illinois Department of Public Health

## REFERENCES

1. Green A.P. Refractories Site Team Evaluation Prioritization CERCLA Report. IEPA, Springfield, Illinois, 1995.
2. Mark Wagner, December 11, 1996. Telephone communication with Mark Wagner, IEPA, Springfield, Illinois, regarding the site's status.
3. Gene Shostrom, March 14, 1997. Telephone communication with Gene Shostrom, Director of Environmental Health, Grundy County Health Department, Morris, Illinois, regarding public health concerns at the site.

## CERTIFICATION

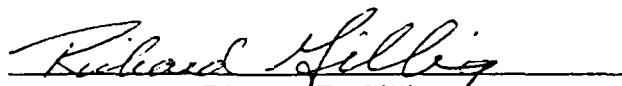
This A. P. Green Refractories Site Health Consultation was prepared by the Illinois Department of Public Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the health consultation was begun.

  
Gail D. Godfrey

Technical Project Officer

Division of Health Assessment and Consultation  
ATSDR

The Division of Health Assessment and Consultation, ATSDR, has reviewed this health consultation and concurs with its findings.

  
Richard E. Gillig

Chief, State Programs Section

Division of Health Assessment and Consultation  
ATSDR

Table 1. Sediment Sample Locations, 1995

SAMPLE #	DEPTH	APPERANCE	LOCATION
X201	0-6 inches	dark brown clay heavy organic	Goose Lake State Park small pond near the visitor center
X202	0-6 inches	brown, silty clay organic	nrothwest end of site, small pond north side of pond
X203	0-6 inches	brown, silty clay silt	southwest corner of site, small pond west side of pond
X204	0-4 inches	gray clay over an organic layer, over brown clay	middle of southern protionof site, ditch that flood 2-3 acres then flows east
X205	0-6 inches	brown, gray clay	low land area north of buildings northwest of on-site house
X206	0-3 inches	black. organic clay X205	southeast of buildings mixing point of mined areas & north area runoff
X207		duplicate of X206	
X208	0-6 inches	black. organic clay light brown	50' west of Dresden Road main drainage leading off-site
X209	4-5 inches	organic, gray clay	west side of drainage culvert leading off-site
X210	0-5 inches	gray clay with some organics	east side of drainage culvert runoff route to Kankakee River
X211	0-6 inches	sandy, silty clay	3400' east of Dresden Road near a fence blocking access to the river

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**Table 2. Sediment Contamination (1995 IEPA STEP)**

Contaminant	Maximum ( $\mu\text{g/kg}$ )	Location	Comparison Value ( $\mu\text{g/kg}$ )
Benzo(a)pyrene	510.0J	X206	100 CREG

$\mu\text{g/kg}$  - micrograms per kilogram.

J - estimated value which is used when estimating a concentration for tentatively identified compounds.

CREG - Cancer Risk Evaluation Guide for  $1 \times 10^{-6}$  excess cancer risk.



A.P. Green  
 Refractories  
 ILD 049136658  
 Site Location Map  
 Figure 1

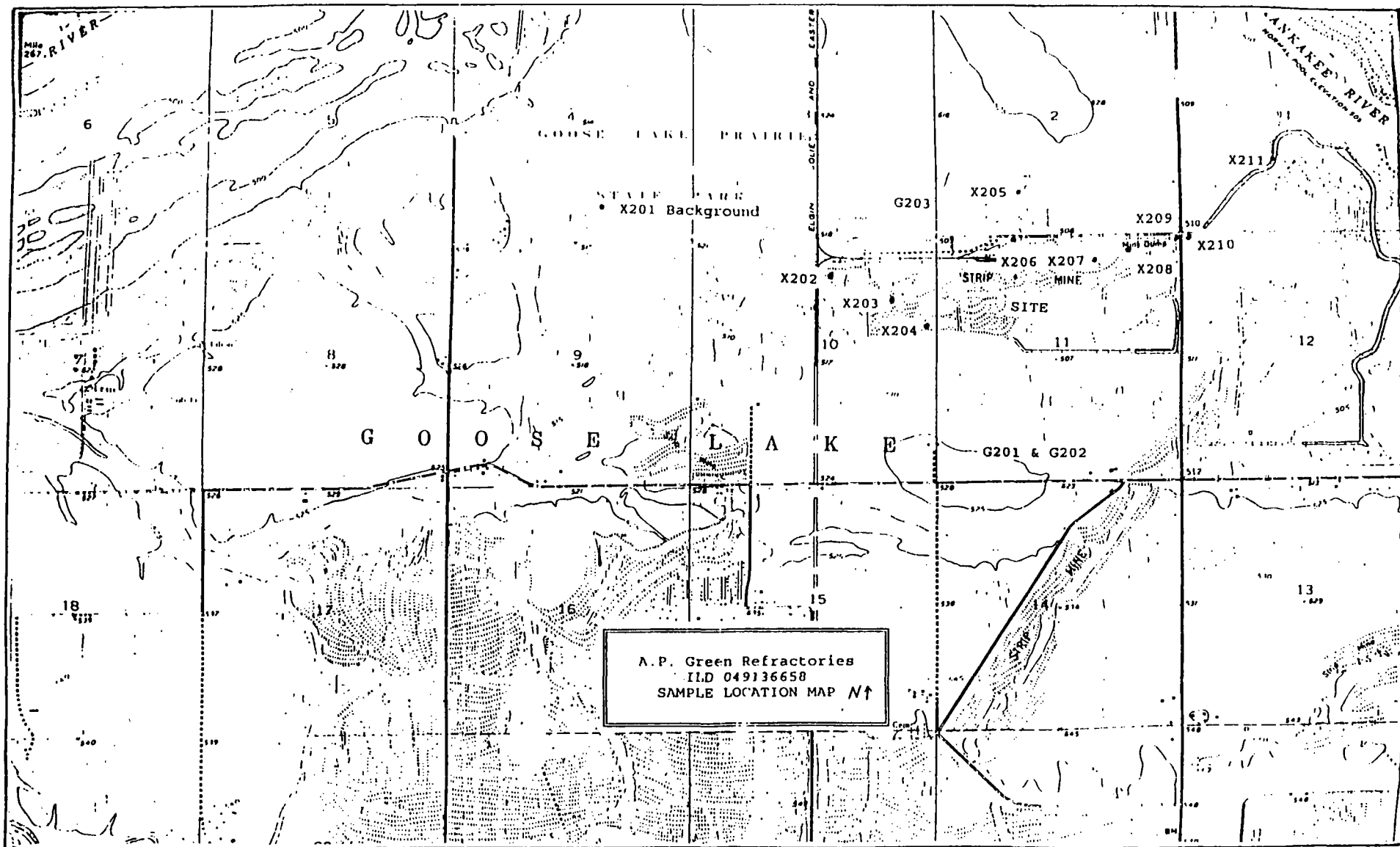


Figure 2

## Comparison Values Used In Screening Contaminants For Further Evaluation

Environmental Media Evaluation Guides (EMEGs) are developed for chemicals based on their toxicity, frequency of occurrence at National Priority List (NPL) sites, and potential for human exposure. They are derived to protect the most sensitive populations and are not cut-off levels, but rather comparison values. They do not consider carcinogenic effects, chemical interactions, multiple route exposure, or other media-specific routes of exposure, and are very conservative concentration values designed to protect sensitive members of the population.

Reference Dose Media Evaluation Guides (RMEGs) are another type of comparison value derived to protect the most sensitive populations. They do not consider carcinogenic effects, chemical interactions, multiple route exposure, or other media-specific routes of exposure, and are very conservative concentration values designed to protect sensitive members of the population.

Cancer Risk Evaluation Guides (CREGs) are estimated contaminant concentrations based on a one excess cancer in a million persons exposed to a chemical over a lifetime. These are also very conservative values designed to protect sensitive members of the population.

Maximum Contaminant Levels (MCLs) have been established by USEPA for public water supplies to reduce the chances of adverse health effects from contaminated drinking water. These standards are well below levels for which health effects have been observed and take into account the financial feasibility of achieving specific contaminant levels. These are enforceable limits that public water supplies must meet.

Lifetime Health Advisories for drinking water (LTHAs) have been established by USEPA for drinking water and are the concentration of a chemical in drinking water that is not expected to cause any adverse non-carcinogenic effects over a lifetime of exposure. These are conservative values that incorporate a margin of safety.